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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,925	07/27/2004	Shinji Kawata	120307	8941

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EXAMINER

NOLAN, JASON MICHAEL

ART UNIT PAPER NUMBER

1626

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/500,925	Applicant(s) KAWATA ET AL.	
	Examiner Jason M. Nolan, Ph.D.	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

**Claims 1-17** are currently pending in the instant application.

### ***Priority***

This application is a 371 of PCT/JP03/00152, filed on January 10, 2003.

Acknowledgement is made of Applicant's claim for foreign priority under 35 U.S.C. §§ 119(a) – (d), by Japan Patent Applications 2002-003830, filed on January 10, 2002, 2002-198275, filed on July 8, 2002, and 2002-262256, filed on September 9, 2002.

### ***Information Disclosure Statement***

The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining

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compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

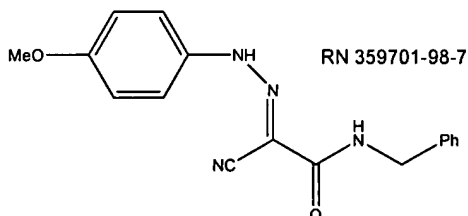
***Claim Rejections - 35 USC § 102(b)***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

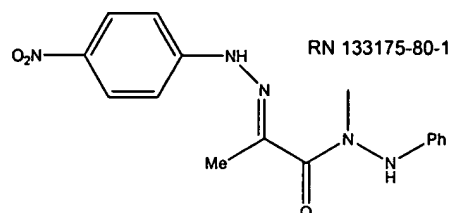
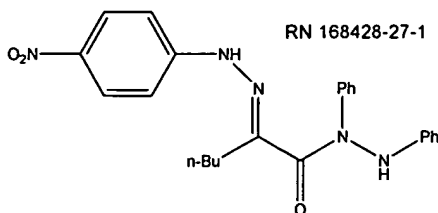
**Claims 1-7** are rejected under 35 U.S.C. § 102(b) as being anticipated by Bel'skaya *et al.* (*Chemistry of Heterocyclic Compounds*, **2001**, 36(9), 1066). Bel'skaya *et al.* teaches RN 359701-98-7, which anticipates the hydrazones according to formula (I) in Claim 1, shown below:



The above compound represents formula (I), wherein **Z** = cyano, **W** = CR<sup>1</sup>R<sup>2</sup>, **A** = aryl, and **Q** = phenyl. **Claim 8** avoids this art because **A** is limited to phenyl or heterocyclic and in the above structure, **A** = a substituted phenyl (aryl).

**Claims 9 and 14-17** are rejected under 35 U.S.C. § 102(b) as being anticipated by Waldheim *et al.* (*Journal fuer Praktische Chemie/Chemiker-Zeitung* **1995**, 337(3), p. 222.). Waldheim *et al.* teaches RN 133175-80-1 and RN 168428-27-1, which anticipate the hydrazones according to formula (II) in Claim 9, wherein **A'** = aryl, **Q'** = aryl, **Z'** = alkyl, **W'** = NH, **Y** = O, **X<sup>1</sup>** = H, and **X<sup>2</sup>** is methyl or phenyl, shown below:

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**Claims 10-13** avoids this art because **A'** is limited to phenyl or heterocyclic and in the above structure, **A'** = a substituted phenyl (aryl).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

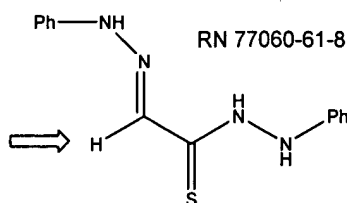
1. *Determining the scope and contents of the prior art.*
2. *Ascertaining the differences between the prior art and the claims at issue.*
3. *Resolving the level of ordinary skill in the pertinent art.*
4. *Considering objective evidence present in the application indicating obviousness or nonobviousness.*

**Claims 9-12 and 14-17** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Larsen *et al.* (*Journal of Organic Chemistry* **1981**, 46(12), p. 2465), taken alone.

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**Determination of the scope and content of the prior art (MPEP § 2141.01)**

Larsen *et al.* teaches the compound RN 77060-61-8, shown below:



This compound fulfills all of the limitations of formula (II) in **Claim 9**, wherein **A'** and **Q'** = phenyl, **W** = NH, **Y** = S, and **X<sup>1'</sup>** and **X<sup>2'</sup>** = H, with the exception of **Z'** = H, which is not alkyl, as read in **Claim 9**.

**Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)**

As mentioned above, the difference between the prior art of Larsen *et al.* and the compounds of formula II in the instant application is the substitution of hydrogen for methyl (alkyl), pointed out in the scheme above. The arrow indicates that there is hydrogen in the spot where a methyl (alkyl) is for formula II.

**Finding of prima facie obviousness--rational and motivation (MPEP § 2142-2413)**

One skilled in the art would have found the claimed compound prima facie obvious because it is well established that the substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. *In re Wood*, 199 U.S.P.Q. 137 (C.C.P.A. 1978) and *In re Lahr*, 137 U.S.P.Q. 548, 549 (C.C.P.A. 1963). The motivation to make the claimed compounds derives

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from the expectation that structurally similar compounds would possess similar activity (i.e. pharmacological use).

One skilled in the art would have found the claimed compound *prima facie* obvious because it is well established that nothing unobvious is seen in substituting the known claimed isomers, as taught by Larsen *et al.*, since such structurally related compounds suggest one another and would be expected to share common properties absent a showing of unexpected results. *In re Norris*, 84 USPQ 458 (1950).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 1-17** are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compounds wherein  $Y = O$ , does not reasonably provide enablement for compounds wherein  $Y = S$ . The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Undue experimentation is a conclusion reached by weighing the noted factual considerations set forth below as seen in *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). A conclusion of lack of enablement means that, based on the evidence regarding a fair evaluation of an appropriate combination of the factors below, the specification, at the time the application was filed, would not have taught one

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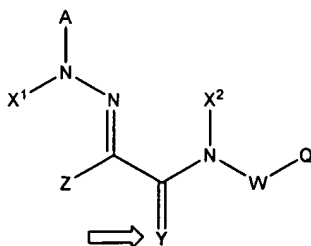
skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation.

These factors include:

- (A) *The breadth of the claims;*
- (B) *The nature of the invention;*
- (C) *The state of the prior art;*
- (D) *The level of one of ordinary skill;*
- (E) *The level of predictability in the art;*
- (F) *The amount of direction provided by the inventor;*
- (G) *The existence of working examples; and*
- (H) *The quantity of experimentation needed to make or use the invention based on the content of the disclosure.*

*The breadth of the claims - The nature of the invention*

**Claims 1-17** are drawn to compounds according to formula (I) of claim 1 and formula (II) of claim 9, wherein the definitions of **A**, **W**, **Q**, **Z**, **X<sup>1</sup>**, **X<sup>2</sup>**, and **Y** are defined therein. Compounds according to these formulas are useful as insecticides. Pointed out below is the substituent **Y**, wherein **Y** is defined as O or S.



*The state of the prior art*

Outlined in the specification (pages 1-2) there is plenty of research for insecticides having a hydrozone skeleton, as depicted by the Applicant in the hydrozone derivatives presented therein. The examiner notes that upon a comprehensive search



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for hydrozones according to formulas (I) and (II), however, that only a handful of over 190 documents disclose compounds wherein  $Y=S$  (for example, see Larsen *et al*), suggesting that the state of the prior art is more advanced for species wherein  $Y=O$  than for  $Y=S$ .

*The level of predictability in the art*

The examiner acknowledges the probability and predictability that the active agent, wherein  $Y=O$  or  $S$  may have insecticide activity, however the art is silent with regard to the predictability of any compound as set forth by formula (I) of claim 1 or formula (II) of claim 9 with respect to its preparation and isolation. The elemental substitution of  $S$  for  $O$  in a carbonyl adjacent to an amino functionality (therefore an amide or thioamide) changes the necessary starting materials for making these compounds as well as the reactivity of said starting materials. The elemental difference influences the bond length, electronegativity, and therefore the localization of electrons with respect to the amide or thioamide functionality. Therefore, it is unpredictable to know, from the outlined methods in the instant specification, how to make all of the compounds claimed in formula (I) or (II).

*The amount of direction provided by the inventor*

The instant specification is not seen to provide adequate guidance, which would allow the skilled artisan to extrapolate from the disclosure and examples provided, to use the claimed method commensurate in the scope with the instant claims. There is a lack of information pertaining to the synthesis of formulas (I) and (II) in which  $Y = S$  and to examples, which adequately represent the scope of claim as written (in which  $Y = S$ ).

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The examiner notes that Schemes 1-7, shown on pages 15-21 and Tables 1-8, shown on pages 53-64 of the specification provide guidance to the invention only if  $Y=O$ . The Schemes and Tables provide no direction on how to prepare compounds of formulas (I) and (II) for which  $Y=S$ .

*The existence of working examples*

The working examples set forth in the instant specification are directed to the compounds of formulas (I) and (II) for which  $Y=O$ . There has not been provided sufficient evidence that would warrant the skilled artisan to accept the data and information provided in the working examples as correlative proof that any compound of claim 1 would indeed be able to be synthesized using the methods outlined in Schemes 1-7.

*The quantity of experimentation needed to make and use the invention based on the content of the disclosure*

Indeed, in view of the information set forth supra, the instant disclosure is not seen to be sufficient to enable the preparation of any compound of claims 1 or 9, as defined by formulas (I) or (II). One skilled in the art could not use the entire scope of the claimed invention without undue experimentation. One skilled in the art would be confronted with an undue burden of experimentation to acquire alternative starting materials in view of formulas III, V, VI, Ib, Ic, Id, and Ix (Schemes 1-7) AND attempt to prepare the desired products Ia, Ie, and If. Furthermore, one skilled in the art would be confronted with an undue burden of experimentation to isolate, characterize, and test

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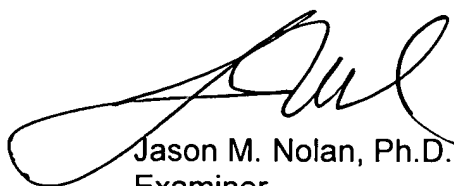
the various compounds of claim 1 to determine if indeed they have efficacy as insecticides.

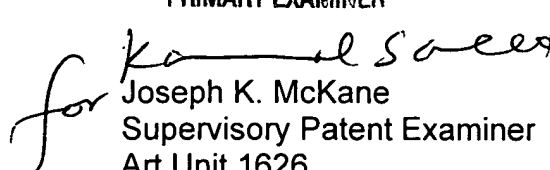
***Telephone Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jason M. Nolan, Ph.D.** whose telephone number is **(571) 272-4356**. The examiner can normally be reached on Mon - Fri (9:00 - 5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jason M. Nolan, Ph.D.  
Examiner  
Art Unit 1626

KAMAL A. SAEED, PH.D.  
PRIMARY EXAMINER  
  
for Joseph K. McKane  
Supervisory Patent Examiner  
Art Unit 1626  
Date: February 20, 2006